

Unresolved LWG Comments on RI Section 10

August 29, 2014

Section 10 of the LWG's August 29, 2011 Draft Final RI Report presented the LWG's conceptual site model for Portland Harbor. The LWG's CSM integrated information presented throughout the RI Report to portray the relationship among sources, chemicals, transport mechanisms and human and ecological receptors. See, Portland Harbor Consent Order SOW, §4.5.1. The LWG's draft of Section 10 thus contained a detailed discussion linking known and suspected sources of contamination to contaminant distribution identified during the RI and explaining the risks associated with areas of elevated contaminant concentrations. Although complex, a robust synthesis of physical, chemical, biological and human use information is a critical foundation for evaluating the risk reduction achievable through potential remedial alternatives.

"The purpose of the remedy selection process is to implement remedies that eliminate, reduce, or control risks to human health and the environment." 40 C.F.R. §300.430(a)(1). Accordingly, "the purpose of a remedial investigation (RI) is to collect data necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives." 40 C.F.R. §300.430(d). EPA's 2005 sediment guidance stresses the importance of a robust conceptual site model to an adequate characterization of complex sediment sites such as Portland Harbor:

Especially important at sediment sites is the development of an accurate conceptual site model which identifies contaminant sources, transport mechanisms, exposure pathways, and receptors at various levels of the food chain.

Sediment Guidance, pp. i-ii.

For sediment sites, perhaps even more so than for other types of sites, the CSM can be an important element for evaluating risk and risk reduction approaches. *** Essential elements of a CSM generally include information about contaminant sources, transport pathways, exposure pathways, and receptors. Summarizing this information in one place usually helps in testing assumptions and identifying data gaps and areas of critical uncertainty for additional investigation. The site investigation is, in essence, a group of studies conducted to test the hypotheses forming the conceptual site model and turning qualitative descriptions into quantitative descriptions. The initial conceptual model should be modified to document additional source, pathway, and contaminant information that is collected throughout the site investigation. *** A good CSM can be a valuable tool in evaluating the potential effectiveness of remedial alternatives. As noted in the following section on risk assessment, the CSM should capture in one place the pathways remedial actions are designed to interdict to reduce exposure of human and ecological receptors to contaminants.

Sediment Guidance, §2.2.

EPA's revisions to RI Section 10 deleted most of the CSM developed by the LWG and EPA between 2001 and 2011,¹ including:

- Important details on the physical site setting and sediment transport and stability, which are necessary to evaluate the effectiveness of natural recovery and monitored natural recovery. These are standard components of a CSM. *See, Risk Management Principles Recommended for Contaminated Sediment Sites* (EPA 2002) (Principle 4: "Develop and refine a conceptual site model that considers sediment stability").
- Details about the locations of historical industrial facilities relevant to the understanding of sources for the CSM.
- Almost all details on receptors and exposure scenarios. Establishing the link between investigation data and the assessment of risk is a critical function of the CSM. *See, Standard Guide for Developing Conceptual Site Models for Contaminated Sites*, (ASTM 1995).
- Most discussion of historical pathways. The discussion of historical pathways is now out of balance with the current sources discussion, which focuses on pathways. This is a significant omission because the contribution from historical sources relative to current sources is important for identifying practical cleanup technologies in the FS.
- Most of the loading analysis, which is a critical CSM element considering the dynamic nature of this river system.
- Discussion of chemical signatures and nature, which inform an understanding of potential sources and fate and transport.
- Most discussion of external loading sources including atmospheric, groundwater, and stormwater.
- Discussion of uncertainties.

The CSM Conclusions Section is neither a coherent nor a comprehensive summary of either the key findings of the RI or the CSM, and there are many inconsistencies in the individual contaminant sections. For example, EPA deleted all text about upriver sources of PAHs, but included a new statement that "no upriver watershed sources of BEHP have been identified."

The attached mark up of EPA's redlined revisions to Section 10 identifies all specific text the LWG believes needs to be retained in RI Section 10 in order for the CSM to be adequate. In

¹ Consistent with the 2004 Programmatic Work Plan, the LWG has consistently refined and updated the CSM. EPA's comments on the 2009 draft RI included three general and 33 specific comments on the CSM, incorporation of which expanded the CSM from 73 to 125 pages in length. EPA's 2014 revisions delete 82 pages of analysis from the CSM, reducing it to a 43 page summary of selected topics covered by earlier RI sections.

the absence of EPA integrating this information into a site-specific CSM, the RI lacks an adequate linkage among known and suspected sources of contamination, contaminant distribution and unacceptable risk to support the feasibility study. As important, the lack of an integrated portrayal in a single location in the report of the relationships between sources, areas of elevated contaminant levels, and risks presented by those areas will be confusing to the general or casual reader of the RI, who will be unlikely to dig into the details of appendices for an understanding of the specific risks presented, if any, by picnicking or landing a kayak. As we understood it, one of EPA's main objectives in revising the RI was to make the document more accessible to the general or casual reader.

As we have previously communicated to EPA, Integral has advised the LWG that these issues constitute such significant technical errors that Integral is unwilling to stand behind the findings in the document. The LWG also will not identify itself as an author of EPA's current version of the report, because, taken as a whole, and especially in light of EPA's revisions to Section 10, the RI no longer reflects the LWG's understanding of how physical, biological, and chemical conditions in Portland Harbor interact with human activities and ecological receptors and does not provide a foundation for assessment of a reasonable set of cleanup alternatives in the FS. The LWG acknowledges and will comply with its obligation under the Consent Order, and we will instruct Integral to incorporate EPA's changes into the RI Report and produce a final report for EPA in the manner directed by EPA.